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Volatile Organic Compounds in Consumer and Commercial Products

Environment Canada - Third Consultation Meeting on
Proposed Regulations Limiting Volatile Organic Compounds
in Architectural and Industrial Maintenance Coatings

Meeting Summary Report

September 20, 2006 – Toronto, Ontario

On September 20, 2006 , Environment Canada convened a multi-stakeholder meeting in Toronto to elicit comment and input on the content of its proposed regulations to limit Volatile Organic Compounds (VOCs) in Architectural and Industrial Maintenance (AIM) Coatings. This document is a summary of those proceedings. A list of participants, and the organisations represented, is attached as **Appendix C**. The meeting agenda is also attached as **Appendix A**.

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1. Opening Remarks – Alex Cavadias, Head, VOC Controls Unit, Environment Canada

Mr. Cavadias opened the meeting by introducing himself as the head of Environment Canada's VOC Controls Unit. He explained that this will be the third and last meeting before going to the Canada Gazette, Part I, with the proposed regulations.

Mr. Cavadias then provided an overview of the process that has unfolded since the previous meeting on January 26th, 2006, noting that a number of technical meetings have been convened and that Environment Canada has received numerous comments. He further noted that the goal of this meeting was to provide the opportunity for stakeholders to provide further feedback and input.

2. Process Review – James McKenzie, Lead Facilitator, McKenzieParis Inc.

Mr. McKenzie introduced himself as an independent facilitator for this process, and then introduced Julie Greenspoon from IER. The process, as described by Mr. McKenzie, involves a series of presentations followed by table discussions and a group plenary session. The afternoon's discussions are destined to elicit input from stakeholders on which aspects of the proposed regulations are of concern to their respective organization. Mr. McKenzie emphasised that achieving consensus was not the aim of the meeting; rather, that Environment Canada was desirous of learning from its stakeholders about their concerns and issues regarding the proposed regulations.

3. Health Effects of Particulate Matter/Ozone – Ron Newhook, Senior Evaluator, Toxic Substances Section, Health Canada

Mr. Newhook's presentation was an abbreviated version of the presentation given by Ms. Lettner at the January 26th, 2006 meeting. This enabled the many people who were new to the process to gain an understanding of the health effects of particulate matter (PM) and ozone.

The presentation was divided into two sections; the first dealing with the health effects of particulate matter and the second focusing on the health effects of ozone. The PowerPoint slides accompanying Mr. Newhook's remarks are attached in **Appendix B**.

To begin the presentation, Mr. Newhook explained the complexity of particulates. He then presented a summary of epidemiology studies of the association between exposure to particulate matter and mortality and morbidity (including recent human, animal and mechanistic evidence of effects on the heart).

The second section Mr. Newhook's presentation provided an overview of the association between ozone and health, which was described to be strong, especially for respiratory endpoints.

He concluded the presentation by addressing the overall effects of air pollution on human health, noting that the deaths from heart and lung problems in people exposed to air pollution are just the "tip of the iceberg" relative to other milder effects, and are found at pollution levels previously thought to be safe.

(In the following section, and in similar sections following the summary of other presentations, Q refers to a question posed to the presenter, A refers to the presenter's answer or response, and C refers to comments offered by a participant.)

Q. Childhood asthma is reaching epidemic proportions. What is the relationship between asthma and ground level ozone?

A. Ground level ozone clearly exacerbates asthma. However, asthma is a complex problem and there are a lot of other things that affect people's propensity to get asthma other than ground level ozone.

Q. Can you indicate how many of the studies are Canadian or conducted by Canadian researchers on this subject matter?

A. There are a number of studies that have been conducted in Canada, but an exact number cannot be provided at this meeting. Canadian researchers are at the forefront of this research and were the first to identify that there was a relationship between health affects and the low levels of air pollution found in many Canadian cities. Researchers have access to good databases in Canada and many of the researchers who have worked or currently work for Health Canada are often sought out.

Q. Is it possible to relate the dimension of the particles to their effect?

A. Yes, the crustal particles tend to be larger in size; this coarse fraction of particulate matter appears to a lesser health concern than fine particulate matter. The majority of fine particulate matter, the size fraction that is strongly associated with health effects, is actually formed through combustion processes and, secondarily, from precursor gases which include NOx, SOx, and ammonia.

4. Status Update on PM/Ozone in Canada – Alex Cavadias, Head, VOC Controls Section Environment Canada

In an effort to provide background to any new participants, Mr. Cavadias presented an updated overview of PM and ozone trends across Canada with reference to Canada-wide Standards (CWS), similar to Dennis Herod's presentation from the January 26th, 2006 meeting.

The presentation included a review of 2003 levels of fine particles and ozone, ozone trends, anthropogenic VOC emission trends and forecasts, and a description of the solvent sector's contribution to VOC emissions. The PowerPoint slides accompanying Mr. Cavadias's remarks are also attached in **Appendix B**.

Endorsed in 2000, CWS were established to improve air quality and reduce health and environmental effects. According to averages taken between 2001 and 2003, one-third of Canadians live in regions experiencing PM levels above CWS standards, and half of the population live in regions over the standard level for ozone. Across Canada, data collected up to 2003 revealed that trends in ozone were showing non-significant increases, although some areas have experienced non-significant decreases. Based on 2003 and preliminary 2004 data, the downward trend in VOC and NO concentrations in Canada's urban centres appears to be continuing. A similar trend was also identified for on-road transportation emissions. Mr. Cavadias remarked that the formation of ozone and PM is very climatically dependent so if there are hot and humid summers, then more ozone will be formed. When there are cold and wet summers, there is a lower incidence of high levels of ozone.

Solvent use was identified as 19% of Canada's total VOC emissions, behind upstream oil and gas and combined on- and off-road transportation. Mr. Cavadias pointed out that forecasting has shown that industrial sources and area emissions of VOCs are expected to increase, while VOC emissions from transportation are expected to decline.

Q. This is in reference to the solvent surface coating line on slide 16 [refer to **Appendix B**]. The line growth represents the growth in the paint industry but it does not take into account the movement of consumers to choose water based paint voluntarily.

A. This line does not take the growth of the industry into account. When consideration is given to how much of the industry has moved to low VOC products, it is clear from the total emission data that not all have. If this sector continues to grow then it will affect the trend.

Q. This is in reference to slide 11 [refer to **Appendix B**]. Can you provide a description of what work has gone on in the off-road/on-road transportation sector? Is there any work currently being done on upstream oil and gas?

A. For off-road/on-road transportation, the transportation sector has developed regulations to increase fuel efficiency. The sector is addressing its issues through regulations. As for the upstream oil and gas sector, I cannot answer because I am not involved in this sector and am not aware as to what is being done.

Q. You referred to lower limits when comparing Canada Wide Standards but, as it is reflected in the notes from our previous meeting, EC committed to stop using the terms "lower" and "higher" when referring to limits. With regard to ambient air data, there is more recent data available than the data that you have provided to us [in this presentation]. The city of Montreal has just released its air quality standards and staff compared their standards with the Canada wide standards and 7 out of the 10 monitoring stations that were tested exceed the Canada wide standards.

A. When looking at the data, it is hard to say that we are doing well. There are no safe limits of ozone or PM. The standards were set, based on what is achievable.

C. Can I also give complimentary response to the transportation question? The transportation sector is 100% regulatory, not only for emissions from the tail pipe but from evaporated emissions off the car as well. The reduction is achieved totally through command and control.

5. Federal Agenda for the Reduction of VOCs from Consumer and Commercial Products - Alex Cavadias, Head, VOC Controls Unit, Environment Canada

Mr. Cavadias' presentation provided an overview of the scientific and policy drivers that lead to taking action on VOCs in consumer and commercial products, as well as an outline of the Federal Agenda. The PowerPoint slides accompanying Mr. Cavadias's remarks are attached in **Appendix B**.

In his presentation, Mr. Cavadias noted that, in 2000, solvents were the second largest contributor to VOC emissions in urban areas and that they will be the largest contributor by 2010. The Federal Agenda was developed as a descriptive Action Plan whose objective is to 'reduce VOC emissions in Canada by reducing the VOC content of consumer and commercial products'. The Agenda includes regulatory and non-regulatory elements, as well as some voluntary and mandatory standards.

Mr. Cavadias also outlined some of the challenges to implementing the Agenda including the north-south movement of goods and the possibility that economic growth is countering any potential VOC reductions in individual products.

Q. Canada's commitment in the Ozone Annex, is it regulatory or numerical? Can you comment on where the US is with its commitment?

A. In the Ozone Annex, Canada committed to reductions that will be undertaken in consumer and commercial products, i.e., paint and coatings, etc. When you look at the Annex, it has commitments made by Canada, the US, Quebec and Ontario. As for the US, it is either about to achieve, or have achieved, many of its commitments, but I can not give you exact information on which ones

Q. You are right in saying that the Ozone Annex has no numerical commitments. The US commits to doing everything that is in the US *Clean Air Act*. The Annex was signed in December 2000, in the last days of the Clinton administration. Can you comment on the review of the *Clean Air Act* by the Canadian government? Might the review of *Clean Air Act* sidetrack this project?

A. I cannot comment on when or what is going to be tabled in the House of Commons. What the agenda is doing compliments whatever the government will announce in its *Clean Air Act*. I personally anticipate that it will have no negative effect – I think that it will be positive. I do not expect anything to be sidetracked. In some cases it may be accelerated as there will be increased pressure for more stringent limits.

6. Update on Working Group on Traffic Marking - Alex Cavadias, Head, VOC Controls Unit, Environment Canada

Mr. Cavadias' presentation provided an overview of the Strategic Plan for implementing the use of low VOC traffic marking coatings. The PowerPoint slides accompanying Mr. Cavadias' remarks are attached in **Appendix B**.

Traffic markings were one of the key areas that had been identified during previous consultations. Mr. Cavadias noted that the goal of achieving lower VOC levels in the timeline set out will be done without compromising road safety. A working group for traffic marking coatings was established and has met a number of times, and has drafted a Strategic Plan. The objective of the Strategic Plan is to 'facilitate the changeover to the usage of traffic markings complying with the VOC content limit of 150 g/L to be in force by 2010'. The plan also promotes opportunities for testing and developing products that can be used in lower temperatures.

The draft Strategic Plan was recently presented in Charlottetown to the Transportation Association of Canada (TAC) and, after reviewing comments, will be finalized by December 2006.

Q. I attended a meeting on traffic markings last fall where I was made aware of the fact that many municipalities require two years of testing data to adopt a product. How will any regulation take into account that reality?

A. Most municipalities rely on the standards set by the provinces and use those products. Municipalities are one of the groups that this plan will be distributed to. The document includes a list of currently available alternatives. In fact, many municipalities have already changed to water based and low VOC paints.

Q. Were there any alkyd producers in the group?

A: There are three paint companies in the group who are providing us information on what types of products are in the pipeline, and we have included those on the list of alternatives. The list is constantly changing. The goal is to have a product that works really well at cold temperatures. While there seems to be some challenges with colder temperatures, there are some products that look promising.

7. Stakeholder Comments on Last Proposal and Environment Canada's Response – Martin Jeanson, Chemicals Sector Division, Environment Canada

In his presentation, Mr. Jeanson provided an overview of the activities to date as well as a summary of stakeholder comments and issues that had been received since the January 2006 consultation meeting, as well as Environment Canada's response to a number of those issues. The PowerPoint slides accompanying Mr. Jeanson's remarks are attached in **Appendix B**.

Below is a list of issues for which stakeholder comments were presented and discussed during his presentation:

- The method/policy for reducing VOC emissions;
- VOC definition;
- Small business;
- New substance notification (NSN);
- Costs;
- Compliance promotion and enforcement;
- Application of regulation;
- Sell-through provision;
- VOC content determination;
- Labelling;
- Recordkeeping;
- Implementation timelines; and,
- Comments related to specific categories such as flat coatings and metallic pigmented coatings.

Q. When you are talking about timing, EC continues to use stakeholder process as gazette content. This is not advanced warning. Why is advanced consultation used as advanced content?

A. These regulations are already in place in the US, and will be in place in Europe soon. It is fair to say that Canada should implement similar regulations in this business sector; these are not new standards

8. Overview of Proposed Regulatory Elements – Martin Jeanson, Chemical Sectors Division, Environment Canada

In this presentation, Mr. Jeanson provided an overview of the proposed elements for the regulation to limit VOCs in AIM coatings. The intent of the regulations is to set mandatory VOC content limits for architectural and industrial maintenance coatings destined for sale and/or use in Canada. These regulations would apply to manufacturers, importers, and sellers of AIM coatings. There were a number of coatings that were not covered under these proposed regulations. Some of these include adhesives and aerosol coating products. These items not covered will be covered in later regulations or initiatives undertaken by Environment Canada or other jurisdictions.

The PowerPoint slides accompanying Mr. Jeanson's remarks are attached in **Appendix B**. The following section provides a listing of areas addressed in the proposed regulation.

The proposed regulation includes:

- A small container exemption for containers of less than or equal to 1 litre;
- Proposed 50 categories of AIM coatings;
- Selection of coating categories;
- VOC content limits;
- Most restrictive limits;
- A sell-through provision;
- Calculation of VOC content;
- Reference test methods;
- Labelling requirements;
- Recordkeeping requirements;
- Coming into force of regulations
- Proposed effective dates for achieving VOC content limits.

Q. I have three questions: You had said that a majority of limits are the same as those of the OTC Model Rule, except for those in three categories. Which categories are they?

A. I will obtain that information for you. The limits presented in January have not changed. In fact, there was only one limit that had changed in January from the March 2005 meeting. Note from the drafter: the 3 categories with VOC content limits different than OTC's are: Extreme High Durability Coatings, Flow Coatings and Recycled Coatings.

Q. (2) On one of the slides, it says that we can put the VOC content on the label. In the US, you do not have to say what the exact number for VOC content is, but you need to give an estimate for the maximum because it varies.

A. The labelling requirements are still to be finalized, but we will look at what the US has done and we will take that into consideration for the labelling requirements.

Q. (3) Are you requiring us to keep the dates of the VOC measurements?

A. It is not expected that every batch will be measured; however, you will be asked for the last time that the VOC content was measured. In that regard, maintaining appropriate records will be expected.

Q. With regard to the slide on page nine about importation, does the product need to physically be in Canada for it to be labelled? In the US, the rule allows for an import provision. The coatings can be manufactured raw with a date. The implication seems to be that goods not only need to be manufactured before, but actually in Canada by the date set for the regulations.

A. Just to clarify: for this regulation Environment Canada is not merely adopting what is in the US regulation. When we look at provisions, we need to establish a level playing field. Would the product need to be

physically in the country by the effective date? Probably yes. We are unable to go into another country and look at their plants to see how items are being manufactured so they have to be in Canada by the date.

Q. To follow up on that, if someone is voluntarily bringing goods into Canada, we have to say to them, 'you have to give us significant documentation that the product is manufactured before the date'.

A. You have to understand that it is also a question of – it is out of our scope – it may be a possibility. I think it would be.

Q. With regard to the time frame, it is very hard to plan properly when the time frame remains a moving target. Is there some way we could set some definite dates so that we can work toward something?

A. We would like to have VOC reductions as fast as possible. This is the age old question of whether we could set some dates, but we have no control over when things will be published. If we have support from industry that says that they want a firm timeline, we are willing to consider that. This does become problematic if the regulations are delayed and we then have to revisit the dates.

Q. Have you set a deadline for submission of comments?

A. The last period of comment will be between publishing in Canada Gazette, Parts I and II and will last 60 days. We are still receiving comments. There is a formal way of commenting (Canada Gazette, Part I), and then there is an informal comment process which is during, and after, this meeting. We are going into the drafting process and it makes it very difficult to consider comments after that. The moment we can get the documents on the website, we can leave a comment period of two weeks to 30 days.

9. General Comments from Industry – Jim Quick, President of the Canadian Paint and Coatings Association (CPCA)

Mr. Quick spoke on behalf of CPCA and its member companies. He noted that the CPCA has been actively involved in the management of chemical emissions from AIM paint and coatings in Canada for more than twenty-five years and will continue to cooperate with Environment Canada and other stakeholders on the responsible development of new initiatives to reduce emissions of VOCs.

Mr. Quick pointed out that the CPCA did have a number of concerns with the regulatory approach being taken. Some of these concerns focused on timelines around the research and development process and the ability to add a substance to the 'Exemptions List' as the current list of VOC exempt solvents does not include all suitable technical options for paint manufacturers to reformulate consumer products. Mr. Quick recommended including the use of the US model for labelling, as well as including a provision to allow all non-compliant goods to be sold through without an end date.

Mr. Quick concluded his presentation by noting that the annual cost of compliance and reformulation for the proposed VOC limits for all products would be approximately \$200 million per year, which would exceed all combined profits posted by manufacturers and that, while the CPCA endorses Environment Canada's goal of protecting human health and the environment, it must be done by setting up new and realistic targets.

10. General Comments from Environmental Non-Governmental Organizations (ENGOS)

Bruce Walker – STOP

Mr. Walker provided some brief comments noting that since the last meeting, in January 2006, there is now a new government, a new Minister and new Deputy Minister who may not have the background on this issue. He also stated that seeing as the US has had similar regulations in place for almost 10 years, that Canadian industry has had 10 years to notice that these regulations were going to happen.

Sandra Madray - Chemical Sensitivities Manitoba

Ms. Madray thanked EC and provided brief comments noting that while there is the consideration of the cost of the regulation on industry, the effects of air pollution on human health and the environment cannot be ignored. There has been almost no information on the financial impact that air pollution has had on the environment or the other health impacts from air pollution. Both 'sides' have legitimate concerns and the important part is to balance the concerns for industry and the environment. It is also important to understand how small companies can be affected by these regulations.

11. Plenary Discussions

The opportunity to provide comments began with table discussions. Each table was asked to reflect on two main questions:

1. Reflecting back on what you've heard today, what aspects of the proposed regulation are of concern to your organization? How so?
2. What are the significant sticking points in the draft regulation from your organization's point-of-view?

The following list contains some of the comments heard during the plenary session.

Table Discussion:

- How is the labelling for VOC content and the timing for this going to work. A recent major re-labelling for CCCR labels was very expensive. With the timing being recommended, there will be a lot of wasted, already printed labels, as well as wasted staffing effort from the work required to change the labels. We think if the product complies with the regulation and it is only about VOC content being published on the label, there should be a two year grace period after Canada Gazette II.
- For exempt VOCs – the proposal seeks to harmonize with other country's limits, but these other countries have access to chemicals that are not available to Canadian companies that might address technical constraints. This means that we do not have all of the tools available to us that the US does.
- There is a need for a bigger view of the regulation and not just for VOCs themselves.
- It would be better if there were a target date or best/worst case scenario. A lot of the work that needs to get done will not be started or finished until there is an implementation date.
- In the sell-through provision it is expected that 97% of goods will be sold through, but what is done with the last 3%? If it does get disposed of, VOCs will be released anyway. Perhaps it would be better to write the provision so that it gets to 97% sold through and then the last 3% gets sold out open ended.
- Possibly not fair to make a time extension for the remaining 3%. There needs to be a cut off somewhere.
- There are not enough exemptions for small containers. In order to enact something that is from the US, you need to have an expansion of small container list exemption.
- The US experience has shown that the small container category is not abused. People are not going to buy more than they have to use.
- The 'roof' part of the bituminous coating definition needs to be changed as they are not only used on roofs but also on flat surfaces and roads.
- It takes a great deal of time and staff effort to remove product from a store and ensure that the stores are selling the appropriate products.
- Regardless of the date set for the regulation, there will be products that are lost.
- There is time wasted for companies in other industries. For examples, if a company has put its coating out for tender and has receive quotes back, and then during this process the regulation goes into effect, then it has to start over.
- With regard to the CAS numbers, importers of products are unable to get MSDS sheets because vendors say that they are proprietary, making it almost impossible to get a list of VOCs.
- Will there need to be a mainframe developed for the maintenance of records?
- Reporting may become an issue.
- The fundamental basis of the regulation assumes that all VOCs are equal and are all being legislated as the same. There is no growth being seen in solvent levels so the levels trended, I believe, are incorrect.
- What are the resources being assigned to this by Health Canada and Environment Canada for enforcement? How will the regulation be enforced?
- Education for the public and end users is important as people will want to know why they have to buy a more expensive product.

- The ENGO community would like to see someone from the medical profession get on board with this regulation and better explain the health effects. If the general public is educated they may want to buy the better product.
- In order to have a level playing field, then people should be able to sell products made before the effective date even if they were not physically in Canada.
- There are other approvals that will need to be re-certified in order to keep up with the accreditation.
- If companies opt to go for confidential NSN, then it would take an even longer time. There are other processes that will be impacted.

12. An Update on Cost Analysis – Rosy Anne Amourdon, Impact Analysis and Instrument Choice Division, Environment Canada

Ms. Amourdon provided an overview and update on the cost analysis previously done and presented by Cheminfo in February 2005 as well as addressed stakeholders' comments related to cost analysis. The PowerPoint slides accompanying Ms. Amourdon's remarks are attached in **Appendix B**.

Ms. Amourdon noted that the updated cost analysis only considers products to be reformulated and not those to be discontinued. There are two types of incremental costs associated with implementing the regulation: one-time costs and recurring costs. One-time costs include labelling and reformulation while recurring costs include administrative and raw material costs.

The results that were provided from the study suggest that the one-time costs for the architectural, industrial maintenance, and traffic marking sub-sectors will be an estimated \$161 million while the recurring annual cost will be about \$30 million.

Some of the work currently in progress includes the analysis of the impacts of estimated compliance costs on the sector's financial health and competitiveness as well as an analysis of the impacts of discontinued products.

Q1. On the last slide, you indicate that the analysis of the cost benefit is not completed. Can you tell me when it will be?

A. I do not have that answer, and will forward the question to Brenda Tang. Note from the drafter: Another component of the cost analysis, namely that of discontinued products, is currently being conducted by Environment Canada.

C. I would appreciate that you also include the costs that importers and retailers will incur for establishing a database of compliant products as well as a CAS database. I would also like to see a RIAS that would compare the disposal of product vs. the sell through of these products.

Q1. Do industry folks that are here believe these numbers? They do seem a little low.

A. Well, we have the one time costs of \$161 million and the annual costs is \$30 million, so it has already exceeded the cost range previously given by industry (\$120 -\$150 million). Note that the industry presented today new, higher, cost estimates (\$200 million).

Q2. I am interested in what you mean by storage costs and why it is a one-time cost.

A. New products will be water based, and therefore cannot be stored over the winter. As a result, new, heated trucks and facility will be needed.

C. There will be additional costs to heat these facilities and heated transportation is extra so these are recurring costs.

Q1. Did you say that the 67% of products that need to be reformulated are based on CARB?

A. Yes. However, in case someone would disagree with that percentage, suggestions backed up by rationale are welcome.

Q2. Well California had been very heavily regulated for many years when the assumption was made. I would encourage EC to look into that. It does not seem as if you are looking at the cost to the end user, the contractor, or other end users. Painting season will change as end users will not be able to paint with water-based paint all year round.

C. I would like to comment on the one-time storage cost. Changing storage tank to stainless steel is a one-time cost.

Q1. I would like to ask if you shared this info with Industry Canada and whether you have asked them to do a competitive analysis of the costs to industry.

A. No, we have not. The competitive analysis is currently being done by Environment Canada.

C. I think that it would be nice to have Industry Canada's involvement as well. They have a sector that deals with chemicals and they are aware of the different types of businesses that we have. They would be able to bring some value added information to this.

13. Closing Remarks– Mr. Alex Cavadias, Head, VOC Controls Unit, Environment Canada

Mr. Cavadias thanked everyone for attending and their valuable input. He then noted some of the key concerns identified throughout the day such as labelling, record keeping, implementation dates, the sell through provision, importation of goods and exempt solvents.

Mr. Cavadias emphasised that in this process, one of the biggest challenges that EC faces is striking the right balance between the respective interests and goals of the general public, environmental organizations, and industry. The commitment to that balance explains why it has taken as long as it has to complete the analysis on comments.

It is Environment Canada's intention to publish in the Canada Gazette Part One in the Winter 2006-2007. Lastly, the point was emphasized that Environment Canada hopes that industry comes to appreciate that it needs to take action. In turn, by taking steps now, industry will be able to meet the timeline targets. Environment Canada understands issues regarding budget and resources, but it also sees that there are many categories for which compliant products are already available .

Appendix A – Meeting Agenda

Consultation Meeting – September 20, 2006 Hilton Toronto Airport – Mississauga B&C Room

Objectives

1. Present an overview of stakeholder comments received from the January 26, 2006 consultation meeting;
2. Outline the regulatory elements proposed for inclusion in the regulations;
3. Present a summary of the preliminary results of the working group on Traffic Marking; and
4. Begin gathering further feedback from stakeholders on the proposed regulatory elements

Agenda

8:00	Registration	
8:30	Welcome / Opening Remarks	Alex Cavadias, Environment Canada
8:35	Process Review	James McKenzie, McKenzie Paris (Facilitator)
8:45	Health Effects of PM/Ozone	Ron Newhook, Health Canada
9:20	Status Update on PM/Ozone in Canada	Alex Cavadias, Environment Canada
9:40	Federal Agenda for the Reduction of VOCs from Consumer and Commercial Products	Alex Cavadias, Environment Canada
10:00	Update on Working Group on Traffic Marking with the Transportation Association of Canada	Alex Cavadias, Environment Canada
10:10	<i>Health Break (20 minutes)</i>	
10:30	Stakeholder Comments on last proposal update and EC Response	Martin Jeanson, Environment Canada
11:10	Overview of Proposed Regulatory Elements – VOCs in AIM Coatings	Martin Jeanson, Environment Canada
11:45	General Comments from the Industry	Canadian Paint and Coatings Association
11:55	General Comments from NGOs	Environmental Non Governmental Organizations
12:05	<i>Lunch Break (provided)</i>	
13:00	Facilitated Discussion on Proposed Regulation – Table Discussions	
14:00	<i>Health Break (15 minutes)</i>	
14:15	Facilitated Discussion on Proposed Regulation – Plenary	
15:05	Overview and Update on Cost Analysis	Rosy Anne Amourdon, Environment Canada
15:45	Next Steps	Alex Cavadias, Environment Canada
16:00	Close	

Appendix B – Meeting Presentations

Appendix B is not included in this HTML version. For a complete or partial version of this document, please email: vocinfo@ec.gc.ca

Appendix C – Meeting Participants

List of participants for September 20, 2006 Consultation Meeting

Name		Organization
Todd	Aitken	Benjamin Moore and Co. Ltd.
Monica	Alcala-Saavedra	Comex
Rosy Anne	Amourdon	Environment Canada
Peter	Arlukiewicz	MB Transportation and Government Services
Steve	Balmer	ICI Paints
Gallisedo	Bae	Environment Canada
Lorraine	Bennett	ICI
Errol	Bonaventura	Inortech Chimie Inc
Eric	Bos	The Sansin Corporation
Ahin	Bose	Sherwin Williams Company
Stan	Bowditch	Saskatchewan Highways and Transportation
Terry	Butryn	Schwartz Chemical Corporation
Alex	Cavadias	Environment Canada
Grant	Caven	Canadian Tire Corporation, Limited
Frank	Chau	KG Packaging
George	Chau	Engineering & Public Works - Town of Richmond Hill
David	Cheng	Ontario Ministry of the Environment
Sheila	Cole	Environmental Health Association of Nova Scotia (EHANS)
Kevin	Collins	Environment Canada
Greg	Corning	Degussa. Tego Coating Additives and Specialty Resins
John	Dracopoulos	Henry Company
Pierre-Cyrille	Dugal	Industries Pépin Ltée
Daryl	Finlayson	British-Columbia Ministry of Transportation
Jackie	Foster	Univar Canada Limited
Jijo	George	Denalt Paints
Bruce	Gillies	Environment Canada
Gerry	Gomez	Charles Tennant & Co.
Terri	Goulding	Home Hardware Stores Ltd.
Stefan	Grecianu	Premilec inc.
Julie	Greenspoon	IER Planning, Research & Management
Robert	Gross	PPG Architectural Finishes Inc.
Madelyn	Harding	Sherwin Williams Company

Bruce	Henderson	E.I. Dupont Canada
Martin	Jeanson	Environment Canada
Jim	Kantola	ICI Paints
Tom	Klupal	Mayfair Canada
Sandra	Madray	Chemical Sensitivies Manitoba
Jim	Mahon	London & District Labour Council
Sam	Marrow	Acklands-Grainger inc.
Ken	McCallum	Tremco Canada Division RPM Canada
James	McKenzie	McKenzie Paris Inc.
Kevin	Mitchell	Nova Scotia Department of Transportation & Public Works
Jerry	Monteiro	PPG Canada Inc.
Karim	Nasr	The Sherwin-Williams Company
Ron	Newhook	Health Canada
François	Paquette	Soprema
Gordon	Peckover	Linetech Design & Mfg
David	Pépin	Industries Pépin Ltée
Luc	Pépin	Sico
Susan	Peterson	ICI Canada
Daniel	Pourreau	Lyondell Chemical Company
Jim	Quick	Canadian Paint and Coatings Association (CPCA)
Dave	Saucier	Toronto Society of Coatings Technology
Jim	Sell	National Paint and Coatings Association (NPCA)
Dave	Senior	SI Group-Canada, Ltd.
Shiv	Sud	Ontario Ministry of the Environment
Michel	Theauvette	National Master Specification Secretariat, PWGSC
Doug	Thiemann	Home Hardware Stores Ltd.
Trevor	Thorne	General Paint
Fred	Veghelyi	SI Group-Canada, Ltd.
Peter	Villeneuve	Amercoat Canada
Tim	Vogel	Cloverdale Paint Inc.
Bruce	Walker	STOP
Steve	Wolinsky	Rust-Oleum Consumer Brands Canada
Jason	Wong	Ontario Ministry of the Environment
Doug	Woods	Degussa Canada Inc.
Kevin	Wylie	City of Ottawa

Appendix D – Working Draft of Proposed Regulation Elements

Working Draft Only – For Discussion

Please note that this document is not intended to provide the legal version of the regulatory text, but rather to outline the proposed elements for inclusion in the Regulation.

1 Application

Proposed Element	Comments
1 (1) Except as provided in subsection 1 (2), this regulation applies in respect of architectural and industrial maintenance coating products set out in column 1 of Annex 2 that contain Volatile Organic Compounds (VOC) for use or sale within Canada.	
1 (2) This regulation does not apply to: <ul style="list-style-type: none"> a. Any architectural or industrial maintenance coating that is sold or manufactured for use outside of Canada or for shipment to other manufacturers for reformulation or repackaging. b. Any aerosol coating product. 	
1 (3) This regulation, with the exception of Section 6 <i>Recordkeeping</i> , does not apply to: <ul style="list-style-type: none"> a. Any architectural coating as identified in Column 3 of Annex 2 that is sold in a container with a volume of one litre or less. 	Small container provision

2 Definitions

See Annex 1

3 VOC Content Limits

Proposed Element	Comments
3 (1) No person shall manufacture, sell, offer for sale or import any architectural or industrial maintenance coating set out in column 1 of Annex 2 if the concentration of VOC in the product exceeds, when applied as recommended by the manufacturer or importer, the VOC content limit set out in column 2 of Annex 2.	
3 (2) Except as provided in paragraph (3) of this section, if anywhere on the container of any architectural or industrial maintenance coating, or any label or sticker affixed to the container, or in any sales, advertising, or technical literature supplied by a manufacturer or importer or anyone acting on their behalf, any representation is made that indicates that the coating	Most Restrictive Limit (MRL) provision

<p>meets the definition of more than one of the coating categories set out in column 1 of Annex 2, then the most restrictive VOC content limit shall apply.</p>	
<p>3 (3) Provision 3 (2) does not apply to:</p> <ul style="list-style-type: none"> • antenna coatings; • bituminous roof primers; • calcimine recoaters; • fire-retardant coatings; • flow coatings; • high temperature coatings; • impacted immersion coatings; • industrial maintenance coatings; • lacquer coatings (including lacquer sanding sealers); • low-solids coatings; • metallic pigmented coatings; • nuclear coatings; • pre-treatment wash primers; • shellacs; • specialty primers, sealers and undercoaters; • temperature-indicator safety coatings; and • thermoplastic rubber coatings and mastics. 	<p>Exemption from the MRL</p>
<p>3 (4) An architectural or industrial maintenance coating product set out in Column 1 of Annex 2 manufactured prior to the applicable effective date of this regulation may be sold, supplied, or offered for sale for up to one year after the applicable effective date comes into force.</p>	<p>Sell-through provision</p>
<p>3 (5) The VOC content of an architectural or industrial maintenance coating product not meeting the definition of any category included in Annex 1 shall be determined by classifying the coating as a flat coating, nonflat coating or nonflat – high gloss coating and the corresponding VOC content limit set out in Column 2 of Annex 2 shall apply.</p>	

4 VOC Content Determination

Proposed Element	Comments
<p>4 (1) The concentration of VOC of an architectural and industrial maintenance coating product will be determined using the procedures described in paragraph 4 (1) a. or 4 (1) b., as applicable. The VOC content of an architectural or industrial maintenance coating shall be determined without colourant that is added after the tint base is manufactured or imported and packaged in units for sale.</p> <p>a. With the exception of low solids coatings, the VOC content in grams of VOC per litre of coating thinned to the manufacturer's maximum recommendation, excluding the volume of any water and exempt compounds, shall be</p>	

$\text{VOC Content} = \frac{(Ws - Ww - Wec)}{(Vm - Vw - Vec)} \quad (1)$ <p>b.</p> <p>Where: VOC Content = the VOC content of a coating, in grams of VOC per litre of coating Ws = weight of volatiles, in grams Ww = weight of water, in grams Wec = weight of exempt compounds, in grams Vm = volume of coating, in litres Vw = volume of water, in litres Vec = volume of exempt compounds, in litres</p> <p>For low solids coatings, the VOC content in grams of VOC per litre of coating thinned to the manufacturer's maximum recommendation, including the volume of water and exempt compounds, shall be calculated using equation 2 as follows:</p> $\text{VOC Content}_{\text{ls}} = \frac{(Ws - Ww - Wec)}{(Vm)} \quad (2)$ <p>c.</p> <p>Where: VOC Content_{ls} = the VOC content of a low solids coating, in grams of VOC per litre of coating Ws = weight of volatiles, in grams Ww = weight of water, in grams Wec = weight of exempt compounds, in grams Vm = volume of coating, in litres</p>	
<p>4 (2) To determine the composition of a coating in order to perform the calculations in paragraph 4 (1) and verify compliance with the provisions of this regulation, reference method U.S. EPA Method 24 of US 40 Code of Federal Register, Part 60, Appendix A, shall be used except as provided in paragraphs 4 (3).</p>	
<p>4 (3) Analysis of methacrylate multicomponent coatings used as traffic marking coatings shall be conducted according to a modification of U.S. EPA Method 24 of US 40 Code of Federal Register, Part 59, subpart D, Appendix A. This method has not been approved for methacrylate multicomponent coatings used for other purposes than as traffic marking coatings or for other classes of multicomponent coatings.</p>	

5 Container Labelling

Proposed Element	Comments
<p>5 (1) Each manufacturer and importer of any architectural and industrial maintenance coating set out in Column 1 of Annex 2 shall provide the information listed in sections 5 (2) and 5 (3) on the coating container in which the coating is sold or distributed.</p>	

<p>5 (2) A statement of the manufacturer's recommendation regarding thinning of the coating shall be indicated on the label or lid of the container. This requirement does not apply to the thinning of architectural and industrial maintenance coatings with water. If thinning of the coating prior to use is not necessary, the recommendation must specify that the coating is to be applied without thinning.</p>	
<p>5 (3) The VOC content of the coating as described in 5 (3) a. or 5 (3) b. shall be indicated on the label or lid of the container.</p> <ul style="list-style-type: none"> a. The VOC content of the coating, displayed in units of grams of VOC per litre of coating (per Section 4); or b. The VOC content limit in Column 2 of Annex 2 with which the coating is required to comply and does comply, displayed in units of grams of VOC per litre of coating. 	

6 Recordkeeping

Proposed Element	Comments
<p>6 (1) Each manufacturer or importer of an architectural or industrial maintenance coating product set out in Column 1 of Annex 2 shall maintain a record in Canada, for a period of five years after the date on which the record was made, demonstrating compliance of the coating products with the applicable VOC content limits set out in Column 2 of Annex 2, that includes:</p> <ul style="list-style-type: none"> a. each product by name (and identifying number, if applicable) as shown on the product label and in applicable sales and technical literature; b. the VOC content; c. the name(s) and chemical abstract service (CAS) number of the VOC constituents in the product; d. the dates of the VOC content determinations; and e. the coating category and the applicable VOC content limit. <p>These records shall, upon request of the Minister, be submitted to the Minister.</p>	
<p>6 (2) Each manufacturer and importer of any coating product set out in Column 1 of Annex 2 shall, within 90 days upon request of the Minister, provide data concerning the distribution and sales of coating products including, but not limited to:</p> <ul style="list-style-type: none"> a. the name and mailing address of the manufacturer or importer; b. the name, address, and telephone number of a contact person; c. the name of the product as it appears on the label and the applicable coating category set out in Column 1 of Annex 2; d. whether the coating product is marketed for interior or exterior use or both; e. the number of litres sold in Canada in containers greater than 1 litre and in containers less than or equal to one litre; f. the VOC content limit, in grams per litre. 	

<p>g. the names and CAS number of the VOC constituents in the product; and</p> <p>h. the names and CAS number of any exempt compounds in the product.</p>	
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7 Coming into force

Proposed Element	Comments
7 (1) This Regulation comes into force on the day in which it is registered.	

Annex 1 – Definitions:

Antenna coating: A coating formulated and recommended for application to equipment and associated structural appurtenances that are used to receive or transmit electromagnetic signals.

Architectural coating: A coating recommended for field application to stationary structures and their appurtenances, to portable buildings, to pavements, or to curbs. This definition excludes adhesives and coatings recommended by the manufacturer or importer solely for shop applications or solely for application to non-stationary structures such as airplanes, ships, boats and railcars.

Bituminous roof coating: A coating which incorporates bitumens that is formulated and recommended exclusively for roofing.

Bituminous roof primer: A primer which incorporates bitumens that is formulated and recommended exclusively for roofing.

Bond breaker: A coating formulated and recommended for application between layers of concrete to prevent a freshly poured top layer of concrete from bonding to the layer over which it is poured.

Calcimine recoater: A flat solventborne coating formulated and recommended specifically for recoating calcimine-painted ceilings and other calcimine-painted surfaces.

Clear: Means allowing light to pass through, so that the substrate may be distinctly seen.

Clear Brushing Lacquer: A clear wood finish, excluding any clear lacquer sanding sealer, formulated with nitrocellulose or synthetic resins to dry by solvent evaporation without chemical reaction and to provide a solid, protective film, which is intended exclusively for application by brush, and which is labelled as such.

Colourant: A concentrated pigment dispersion in water, solvent and/or binder that is added to an architectural coating in a paint store or at the site of application to produce the desired colour.

Concrete curing compounds: A coating formulated and recommended for application to freshly placed concrete to retard the evaporation of water.

Concrete surface retarders: A mixture of retarding ingredients such as extender pigments, primary pigments, resin, and solvent that interact chemically with the cement to prevent hardening on the surface where the retarder is applied, allowing the retarded mix of cement and sand at the surface to be washed away to create an exposed aggregate finish.

Conversion varnish: A clear acid curing coating with an alkyd (or other resin) blended with amino resins and supplied as a single component or two-component product. Conversion varnishes produce a hard, durable,

clear finish designed for professional application to wood flooring. The film formation is the result of an acid-catalyzed condensation reaction, affecting a transesterification at the reactive ethers of the amino resins.

Dry fog coating: A coating formulated and recommended only for spray application such that overspray droplets dry before subsequent contact with incidental surfaces in the vicinity of the surface coating activity.

Extreme high durability coating: An air dry coating, including a fluoropolymer-based coating, that is formulated and recommended for touch-up of precoated architectural aluminium extrusions and panels.

Faux finishing coating: A coating formulated and recommended as a stain or glaze to create artistic effects including, but not limited to, dirt, old age, smoke damage, and simulated marble and wood grain.

Fire resistive coatings: An opaque coating formulated and recommended to protect the structural integrity by increasing the fire endurance of interior or exterior steel and other structural materials, that has been fire tested and rated by a testing agency approved by building code officials for use in bringing assemblies of structural materials into compliance with all applicable building code requirements. The fire-resistive coating and the testing agency must be approved by building code officials. The fire resistant coating shall be tested in accordance with ASTM Designation E 119-98.

Fire retardant coating – clear: A **clear** coating formulated and recommended to retard ignition and flame spread, that has been fire tested and rated by a testing agency and approved by building code officials for use in bringing building and construction materials into compliance with all applicable building code requirements. The fire-retardant coating and the testing agency must be approved by building code officials. The fire-retardant coating shall be tested in accordance with ASTM Designation E 84-99.

Fire retardant coating – opaque: An **opaque** coating formulated and recommended to retard ignition and flame spread, that has been fire tested and rated by a testing agency and approved by building code officials for use in bringing building and construction materials into compliance with all applicable building code requirements. The fire-retardant coating and the testing agency must be approved by building code officials. The fire-retardant coating shall be tested in accordance with ASTM Designation E 84-99.

Flat coating: A coating that is not defined under any other definition in this Annex and that registers gloss less than 15 on an 85-degree meter or less than 5 on a 60-degree meter according to ASTM Method D 523-89 (1999).

Floor coating: An opaque coating that is formulated and recommended for application to flooring including, but not limited to, decks, porches, steps and other horizontal surfaces, which may be subject to foot traffic.

Flow coating: A coating that is used by electric power companies or their subcontractors to maintain the protective coating systems present on utility transformer units.

Form release compound: A coating formulated and recommended for application to a concrete form to prevent the freshly placed concrete from bonding to the form. The form may consist of wood, metal, or some material other than concrete.

Graphic arts coating: A coating formulated and recommended for hand-application by artists using brush or roller techniques to indoor or outdoor signs (excluding structural components) and murals including lettering enamels, poster colours, copy blockers, and bulletin enamels.

High temperature coating: A high performance coating formulated and recommended for application to substrates exposed continuously or intermittently to temperatures above 202°C.

Impacted immersion coating: A high performance maintenance coating formulated and recommended for application to steel structures subject to immersion in turbulent, debris-laden water. These coatings are specifically resistant to high-energy impact damage caused by floating ice or debris.

Industrial maintenance coating: A high performance architectural coating, including primers, sealers, undercoaters, intermediate coats, and topcoats formulated and recommended for application to substrates exposed to one or more of the following extreme environmental conditions;

- (1) Immersion in water, wastewater, or chemical solutions (aqueous and nonaqueous solutions), or chronic exposure of interior surfaces to moisture condensation;
- (2) Acute or chronic exposure to corrosive, caustic, or acidic agents, or to chemicals, chemical fumes, or chemical mixtures or solutions;
- (3) Repeated exposure to temperatures above 121°C;
- (4) Repeated (frequent) heavy abrasion, including mechanical wear and repeated (frequent) scrubbing with industrial solvents, cleansers, or scouring agents; or,
- (5) Exterior exposure of metal structures and structural components.

Lacquers (including lacquer sanding sealers): A clear or pigmented wood finish, including clear lacquer sanding sealers, formulated with cellulosic or synthetic resins to dry by evaporation without chemical reaction and to provide a solid, protective film. Lacquer stains are considered stains, not lacquers.

Low solids coating: Containing 0.12 kg or less of solids per litre of coating material.

Mastic texture coating: A coating formulated and recommended to cover holes and minor cracks and to conceal surface irregularities, and is applied in a single coat of at least 10 mm dry film thickness.

Metallic pigmented coating: A coating containing at least 48g of elemental metallic pigment per litre of coating as applied, when tested in accordance with SCAQMD Method 318-95.

Multi-coloured coating: A coating that is packaged in a single container and exhibits more than one colour when applied in a single coat.

Non-flat coating: A coating that is not defined under any other definition in this section and that registers a gloss of 15 or greater on an 85-degree meter or a 5 or greater on a 60-degree meter according to ASTM Method D 523-89 (1999).

Non-flat – High Gloss Coating: A non-flat coating that registers a gloss of 70 or above on a 60-degree meter according to ASTM Designation D523-89 (1999).

Nuclear coating: A protective coating formulated and recommended to seal porous surfaces such as steel (or concrete) that otherwise would be subject to intrusion by radioactive materials. These coatings must be resistant to long-term (service life) cumulative radiation exposure (ASTM Method D 4082-89), relatively easy to decontaminate, and resistant to various chemicals to which the coatings are likely to be exposed (ASTM Method D 3912-80).

Opaque: Not allowing light to pass through, so that the substrate is concealed from view.

Pigmented: Containing finely ground insoluble powder used to provide one or more of the following properties: colour, corrosion inhibition, conductivity, fouling resistance, opacity, or improved mechanical properties.

Pretreatment wash primer: A primer that contains a minimum of 0.5 percent acid, by weight, when tested in accordance with ASTM Designation D1613-96, that is formulated and recommended for application directly to bare metal surfaces to provide corrosion resistance and to promote adhesion of subsequent topcoats.

Primer: A coating formulated and recommended for application to a substrate to provide a firm bond between the substrate and subsequent coatings.

Quick-dry enamel: A nonflat coating that has the following characteristics:

- (1) Is capable of being applied directly from the container under normal conditions with ambient temperatures between 16 and 27°C;
- (2) When tested in accordance with ASTM Method D 1640-83, sets to touch in 2 hours or less, is tack free in 4 hours or less, and dries hard in 8 hours or less by the mechanical test method; and,
- (3) Has a dried film gloss of 70 or above on a 60-degree meter.

Quick-dry primers, sealers, and undercoaters: A primer, sealer, or undercoater that is dry to the touch in a 1/2 hour and can be recoated in 2 hours when tested in accordance with ASTM Method D 1640-95.

Recycled coating: An architectural coating formulated such that not less than 50 percent of the total weight consists of secondary and post-consumer coating, with not less than 10 percent of the total weight consisting of post-consumer coating.

Roof coating: A non-bituminous coating formulated and recommended for application to roofs for the primary purpose of preventing penetration of the substrate by water or reflecting heat and reflecting ultraviolet radiation. This does not include thermoplastic rubber coatings. Metallic pigmented roof coatings which qualify as metallic pigmented coatings shall not be considered to be in this category, but shall be considered to be in the metallic pigmented category.

Rust preventative coating: A coating, **including primers**, formulated and recommended for nonindustrial use to prevent the corrosion of ferrous metal surfaces.

Sanding sealer (other than lacquer sanding sealers): A clear or semi-transparent wood coating formulated and recommended for application to bare wood to seal the wood and to provide a coat that can be sanded to create a smooth surface. A sanding sealer that also meets the definition of a lacquer is not included in this category, but is included in the lacquer category.

Sealer: A coating formulated and recommended for application to a substrate for one or more of the following purposes: to prevent subsequent coatings from being absorbed by the substrate; to prevent harm to subsequent coatings by materials in the substrate.

Semitransparent: Not completely concealing the surface of a substrate or its natural texture or grain pattern.

Shellac – clear: A clear coating formulated solely with the resinous secretions of the lac beetle (*Laccifer lacca*), thinned with alcohol, and formulated to dry by evaporation without a chemical reaction.

Shellac – opaque: An opaque coating formulated solely with the resinous secretions of the lac beetle (*Laccifer lacca*), thinned with alcohol, and formulated to dry by evaporation without a chemical reaction.

Shop Application: Application of a coating to a product or a component of a product in or on the premises of a factory or a shop as part of a manufacturing, production, or repairing process (e.g., original equipment manufacturing coatings).

Specialty Primer, Sealer, and Undercoater: A coating formulated and recommended for application to a substrate to seal fire, smoke or water damage; to condition excessively chalky surfaces, or to block stains. An excessively chalky surface is one that is defined as having a chalk rating of four or less as determined by ASTM Designation D 4214-98.

Stain: A clear, semitransparent, or opaque coating formulated and recommended to change the colour of a surface but not conceal the grain pattern or texture.

Swimming pool coating: A coating formulated and recommended to coat the interior of swimming pools and to resist swimming pool chemicals.

Temperature-Indicator Safety Coating: A coating formulated and recommended as a colour-changing indicator coating for the purpose of monitoring the temperature and safety of the substrate, underlying piping, or underlying equipment, and for application to substrates exposed continuously or intermittently to temperatures above 204°C.

Thermoplastic rubber coating and mastic: A coating or mastic formulated and recommended for application to roofing or other structural surfaces and that incorporates no less than 40 percent by weight of thermoplastic rubbers in the total resin solids and may also contain other ingredients including, but not limited to, fillers, pigments, and modifying resins.

Tint Base: An architectural coating to which colourant is added after packaging in sale units to produce a desired color.

Traffic marking coating: A coating formulated and recommended for marking and striping streets, highways, or other traffic surfaces including, but not limited to curbs, berms, driveways, parking lots, sidewalks and airport runways.

Undercoater: A coating formulated and recommended to provide a smooth surface for subsequent coatings.

Varnish: A clear or semi-transparent coating, excluding lacquers and shellacs, formulated to dry by chemical reaction. Varnishes may contain small amounts of pigment to colour a surface, or to control the final sheen or gloss of the finish.

Waterproofing sealer: A coating formulated and recommended for application to a porous substrate for the primary purpose of preventing the penetration of water.

Waterproofing sealer – concrete/masonry: A clear or pigmented film-forming coating that is formulated and recommended for sealing concrete and masonry to provide resistance against water, alkalis, acids, ultraviolet light and staining.

Annex 2 – Proposed VOC Content Limits for Architectural and Industrial Maintenance Coatings

COLUMN 1 Coating Category	COLUMN 2 Proposed VOC Content Limit ⁱ (grams/litre)	COLUMN 3 Small Container Exemption (1 litre or less)
Antenna coatings	530	
Bituminous roof coatings	300 ⁱⁱ	
Bituminous roof primers	350 ⁱⁱ	
Bond breakers	350	
Calcimine recoater	475	
Clear brushing lacquers	680	
Concrete curing compounds	350	
Concrete surface retarder	780	
Conversion varnish	725	
Dry fog coatings	400	
Extreme high durability coatings	800	

Faux finishing/glazing	350	yes
Fire resistive coatings	350	
Fire retardant coatings – clear	650	
Fire retardant coatings – opaque	350	
Flat coatings	100	
Floor coatings	250	
Flow coatings	650	
Form release compounds	250 ⁱⁱ	
Graphic arts coatings	500	
High temperature coatings	420	yes
Impacted immersion coatings	780	
Industrial maintenance coatings	340	
Lacquers (including lacquer sanding sealers)	550	yes
Low solids coatings	120	yes
Mastic texture coatings	300	
Metallic pigment coatings	500	
Multi-coloured coatings	250	
Nonflat coatings	150	
Nonflat coatings – high gloss	250	
Nuclear coatings	450	
Pretreatment wash primers	420	
Primers, sealers and undercoaters	200	
Quick dry enamels	250	yes
Quick dry primers, sealers and undercoaters	200	
Recycled coatings	350 ⁱⁱⁱ	
Roof coatings (non-bituminous)	250	
Rust preventative coatings	400	
Sanding sealers (other than lacquer sanding sealers)	350	
Shellacs – clear	730	
Shellacs – opaque	550	
Specialty primers, sealers and undercoaters	350	
Stains	250	yes
Swimming pool coatings	340	

Temperature indicator safety coatings	550	
Thermoplastic rubber coatings and mastics	550	
Traffic marking coatings	150 ⁱⁱ	
Varnishes	350	yes
Waterproofing sealers (concrete/masonry)	400	
Waterproofing sealers	250	

ⁱ The proposed effective date for achievement of the proposed VOC content limits is one year after the regulation comes into force, except where noted otherwise.

ⁱⁱ The proposed effective date for achievement of the proposed VOC content limits for bituminous roof coatings, bituminous roof primers, form release compounds and traffic marking coatings is three years after the regulation comes into force.

ⁱⁱⁱ The proposed effective date for achievement of the proposed VOC content limit for recycled coatings is five years after the regulation comes into force.